RISK AVOIDANCE THROUGH THE FISH CONTAMINANTS PROGRAM

Q. J. Stober[1] and C. R. Houseknecht[2]

AUTHOR: [1]U.S. Environmental Protection Agency, Environmental Services Division, College Station Road, Athens, Georgia 30613; and [2]Office of Water, Office of Science and Technology, Standards and Applied Science Division, U.S. EPA, Washington, D.C.
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Abstract. The U.S. Environmental Protection Agency (USEPA) developed a Federal Assistance Plan to help States standardize fish consumption advisories. Completed projects include an electronic bulletin board system for tracking fish advisories, a critical evaluation of current fish consumption survey methodologies and a reexamination of EPA's 6.5 g/person/day fish consumption rate used in the establishment of water quality criteria. Ongoing projects include development of a four volume set of guidance documents for sampling and analysis of fish tissues, risk assessment, risk management and risk communication; establishment of a national fish tissue contaminants database; and the development of public outreach materials designed to communicate the risks of consuming chemically contaminated fish and shellfish. An overview of this program is presented, focusing on the key components leading to a consistent national protocol for fish consumption advisories.

INTRODUCTION

With approximately 1200 fish advisories/bans based on limited State monitoring, a widespread national problem of restricted fishing exists. These restrictions include bans on shellfishing, advisories to reduce fish consumption by the general population and non-consumption advisories for pregnant women and other high-risk subpopulations. The possibility of many more advisories is likely as monitoring increases and the application of risk based assessments becomes more common. In the past, there has been considerable inconsistency in State programs. These inconsistencies often become apparent on shared water bodies when one State issues a fish consumption advisory and the neighboring State chooses not to do so. This has resulted in considerable confusion among the public, States and Congress. The confusion is exacerbated when advocacy groups issue their own fish consumption advisories such as those issued for the Great Lakes by the National Wildlife Federation. The public does not know who to believe and, as a result, may either ignore sound public health advice or discontinue utilization of the fishery resource. The angling public needs sufficient information to determine whether or not to eat the fish they catch as well as to make intelligent decisions about the relative benefits of fish consumption versus the risks of fish contamination.

Regulatory Authority. The USEPA, the U.S. Food and Drug Administration (FDA) and the States are charged with ensuring the safety of the Nation's food supply. The Federal Food, Drug and Cosmetic Act authorizes FDA to establish maximum permissible levels ("action levels") of contaminants for foods shipped in interstate commerce. However, because of the lengthy regulatory process required to establish an action level for contaminants in fish tissues, only 11 analytes are regulated by FDA. Most attention is focused on bacterial and viral contamination. USEPA and the States are primarily responsible for advising sport and subsistence anglers on contaminants in fish, although EPA's regulatory authority is somewhat indirect. The Clean Water Act mandates EPA to protect fishable, swimmable waters. In an attempt to protect fish consumers, the Office of Water provides 107 human health water quality criteria and approves State standards based on these criteria. The Office of Pesticide Programs recommends action levels for pesticides for adoption and enforcement by FDA.

BACKGROUND

The EPA Office of Water's pollution control programs have brought fish back to the Nation's rivers, but in many areas they are not safe to eat. In particular, there is concern that certain subpopulations such as recreational and subsistence anglers, women of childbearing age and children are not adequately protected. The Office of Science and Technology within the Office of Water has developed a non-regulatory risk reduction program to address these concerns.

Several States and various environmental groups requested that EPA initiate a technical assistance program. In addition, the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) adopted resolutions advising Federal agencies to develop a uniform Federal approach to serve as a basis for: (1) State

agencies' collection and analysis of fish tissue contaminant data, (2) the issuance of necessary consumption advisories for surface water and (3) a consistent national risk-based guidance for fish consumption advisories.

FEDERAL ASSISTANCE PLAN

To begin addressing these problems EPA conducted a survey of State fish advisory programs (Cunningham et.al. 1990). The survey showed that one or more fish advisories had been issued in 43 states and that mercury was the chemical of concern for a majority of these fish advisories (52%). State programs vary widely on sampling and analytical procedures. Results of the survey were verified at a special session held in conjunction with the Annual Meeting of the American Fisheries Society in August 1990 attended by FDA, US FWS, NOAA, TVA, ATSDR, and 27 States plus Washington, DC. Each State submitted three priority project recommendations for Federal assistance. A Federal Assistance Plan was developed by EPA from those recommendations.

Completed and ongoing projects meeting the highest State priorities include (1) reexamination of EPA's 6.5 g/person/day fish consumption rate used in establishing water quality criteria, (2) a critical analysis of fish consumption survey methodologies, (3) guidance documents on methods for sampling and analysis of fish tissue, risk assessment, risk management and risk communication of fish consumption advisories, (4) fish advisory bulletin board, (5) Federal interagency meetings, (6) joint risk communication project with Cornell University and the Ohio River Valley Sanitary Commission (ORSANCO), (7) public outreach directed at racial and ethnic minorities, and (8) development of a national fish contaminants database.

Fish Consumption Rates. Present water quality standards assume a fish consumption rate of 6.5 g/person/day. This has been called into question by both dischargers and environmentalists from the standpoints of accuracy and protection level. Numerous studies suggest that fish consumption rates have increased since this value was chosen. A decision must also be made on the type of consumer (average, sport angler, subsistence fishermen or most highly exposed individual) which should be protected. Thus, a more defensible national fish consumption rate is needed.

Fish Consumption Survey Methods. EPA hosted a national workshop at which a critical analysis of fish consumption survey methodologies was conducted. As a result of that workshop, a guidance document which identifies and evaluates methods for obtaining information on fish consumption rates was developed (USEPA 1992a).

Sampling and Analytical Methods. A guidance document for sampling and analysis of fish tissue has progressed through its second draft. It is designed to promote consistency among State fish advisory programs and among Federal monitoring programs, and to recommend collection of adequate data to design protective fish consumption advisories. It is scheduled to become available in 1993. Guidance documents on risk assessment, risk communication and risk management will be initiated in the near future.

Bulletin Board. An electronic fish advisory bulletin board system was developed to link States, Federal agencies and the public. This database includes a listing of all fish advisories in the U.S. as well as a bibliography of fish risk assessment reports and fish consumption surveys. A User's Manual was completed and made available during 1992 (USEPA 1992b).

Federal Interagency Group. USEPA organized a Federal Interagency Fish Contamination/Consumption Interest Group. Members include NOAA, FDA, USDA, USGS, USFWS and USEPA. Meetings are held quarterly in the Washington, DC area and provide an informal opportunity for members to share information and discuss areas of mutual concern.

Risk Communication. It is difficult to ensure that the public is aware of existing fish advisories and understands the risks associated with consuming contaminated fish. A grant was provided to Cornell University in cooperation with ORSANCO to determine the most effective means of communicating risk to rural and urban populations bordering the Ohio River. A final document on this study is due in June, 1993.

Environmental Equity. The Office of Water and indeed all of USEPA is concerned that some racial and ethnic groups bear a disproportionate share of the risks resulting from environmental pollution. In the case of chemically contaminated fish, Native Americans, African Americans and some Asian Americans are exposed to higher levels of risk because of relatively high rates of consumption of fish and shellfish. USEPA is attempting to reduce that risk by developing public outreach materials that will describe possible health consequences of consuming chemically contaminated fish and will offer suggestions for minimizing this exposure.

Contaminants Database. A national fish contaminants database will be designed to utilize the Ocean Data Evaluation System (ODES) database previously developed by USEPA. This project will be developed in coordination with a USEPA, Region IV project which is assessing the development of a fish contaminants database for the eight southeastern States. Preliminary studies have focused on

the quantity and quality of available data, the cost of using and maintaining such a regional/national database and acceptable QA/QC requirements.

SUMMARY

The impact of bioaccumulative contaminants on the utilization of the Nation's fisheries resources warrants clear and decisive action. The development of the USEPA fish contaminants program can be substantially elevated with reauthorization of the Clean Water Act during the present session of Congress. At least two political issues must be resolved. FDA's regulatory responsibilities need to be determined, as that agency believes that it could regulate recreational fishing. Secondly, guidance documents resulting from the USEPA program must be perceived as Federal guidance, since EPA is coordinating with other agencies.

The USEPA Office of Wetlands, Oceans and Watersheds plans to use fish advisories as a measure of the results of toxic reduction programs as one of its national "environmental indicators". It is important to understand, however, that the number of fish advisories may increase as States intensify monitoring of bioaccumulative pollutants. In the end, the public must be presented with a risk assessment which balances all risk factors without discouraging public use of the resource any more than necessary.

CONCLUSIONS

The USEPA fish contamination program is developing with the participation of 60 workgroup members. These include representatives of 18 states (including fisheries management agencies, health departments and water quality agencies), FDA, FWS, NOAA, TVA, all 10 EPA Regions, Office of Wetlands Oceans and Watersheds, Office of Research and Development and the Office of General Council. Participation by all interested parties is desired as we attempt to focus on regulatory mechanisms to control this problem in the future.

LITERATURE CITED

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